I. Project Title and Project Purpose Statement

Title: "Community-Based Monitoring of First Foods: Sustaining Critical S'Klallam Beach Foods."

Summary: The identified issue for this project is exposure of tribal members to toxics in shellfish from a former industrial facility. The environmental and/ or public health results the community hopes to achieve are reduction in tribal member's exposure to toxics, risk reduction, and resource protection. The project proposal calls for the development of a comprehensive shellfish sampling and monitoring plan for a tribal community that will be enacted during the cleanup of a former sawmill site, located approximately 800 feet west of the tribal reservation. Subsistence tribal harvesters are disproportionately affected by environmental exposures to toxics since they depend on harvests from the land more heavily than the general population. For Coast Salish tribes in Washington State, these subsistence activities usually include fishing, shellfish harvesting, hunting, and plant gathering. The collective term for these food resources is "First Foods." These cultural activities lead to more frequent exposures to toxics in the marine environment than the general population. Therefore, exposures of tribal members living a subsistence lifestyle are often underestimated. For tribes, the health of the natural resources is tied very closely to the public health of the community. According to the 2010 US Census, 20% of the Port Gamble Tribal Community population is below poverty level. Because of these economic conditions, tribal members are dependent upon First Food sources as a major portion of their diet.

Purpose : to reduce the harmful exposure and health risk to Tribal members who harvest shellfish in Port Gamble Bay.

The former sawmill site is located on Port Gamble Bay, directly across the inlet from the Tribe's beaches on the Port Gamble S'Klallam Reservation. Much of the Tribe's subsistence harvest occurs on beaches in direct proximity to the sawmill. Historic industrial activities at the mill site, such as log rafting, a hog fuel burner, and wood preserving, have deposited chemicals that have been deemed hazardous to human health and the environment by the Washington State Department of Ecology (Ecology) and US Environmental Protection Agency (EPA). These include but are not limited to wood waste, metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and dioxins/furans. Ecology is managing a cleanup that will entail the removal of approximately 3,000 creosoted pilings, the removal of approximately 73,000 square feet of existing overwater structure, the dredging of 60,000 cubic yards of contaminated sediments, and the capping of 10 acres. While the Tribe is excited about the cleanup finally getting underway, there are many who are also concerned about the impacts of the cleanup on shellfish beds. The Tribe gets over 80 percent of its subsistence harvest from Port Gamble Bay, therefore it is an important cultural and natural resource for the Tribe. Any impact to the bay would disproportionately affect the Tribe.

This project proposal satisfies all seven elements of EPA's Environmental Justice Collaborative Problem-Solving (CPS) Model, including issue identification, community vision, and strategic goal setting; community capacity-building and leadership development; consensus building and dispute resolution; multi-stakeholder partnerships and leveraging of resources; constructive engagement by relevant stakeholders; sound management and implementation; and evaluation, lessons learned, and replication of best practices.

The project location is the Port Gamble S'Klallam reservation in Kingston, Washington 98346. The reservation is located adjacent to Port Gamble Bay in rural northern Kitsap County, Washington.

This project addresses several of the federal environmental statutes in the Request for Applications. The Clean Water Act (CWA) regulates polycyclic aromatic hydrocarbons (PAHs) in surface waters and protects designated uses such as shellfish harvesting. **Clean Water Act, Section 104(b)(3): "conduct and promote the coordination of research, investigations, training, demonstration projects, surveys, and studies (including monitoring) relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution"** is satisfied through several aspects of the grant. The project would provide training for a field technician, coordinate research among state and tribal agencies, investigate pollution in shellfish, informally survey shellfish consumption, and monitor levels of contaminants during an active cleanup. The proposal relates to the causes of shellfish pollution, effects of perceived and real contamination on harvesting, extent of pollution from a dredging operation, preventing cancer deaths through reducing exposure to carcinogens, and eliminating water pollution through source control such as removal of pilings.

An additional statute is Toxic Substances Control Act (TSCA), which regulates the usage of PCBs and dioxins. **TSCA, Section 10(a), "to conduct research, development, monitoring, public education, training, demonstration projects, and studies on toxic substances"** is satisfied through several aspects of our proposal. Research on accumulations of PCBs and dioxins in shellfish, development of a monitoring plan for shellfish, public education to community about the effects of pollution on human health, training a field technician to do the recurring sampling, and studies on accumulations in shellfish all contribute to components of the statute.

Project partners with MOAs include state government agency Washington State Department of Health (DOH), local businesses Aquatechnics and Baywater Shellfish Farms, and local community-based non-profit intertribal organization Point No Point Treaty Council (PNPTC).

II. Environmental and/or Public Health Information about the Affected Community (15 points)

The Port Gamble S'Klallam Tribe has traditionally depended on shellfish and finfish from the Salish Sea (Puget Sound, the Strait of Juan de Fuca, the Strait of Georgia, and all the interconnecting waterways) to sustain its people. Tribal members today still consider shellfish and finfish harvesting to be a defining component of what it means to be S'Klallam. Being a treaty fisherman provides an identity for many tribal members. Clam bakes are held at weddings, funerals, and important events. Tribal members come in to get their subsistence cards so that they can harvest some clams down at the beach for lunch or dinner. Tribal members devotedly exercise their treaty rights and over 80 percent of subsistence harvest comes from the Bay itself, with one year exceeding 90 percent (2009 – 2012).

Tribal members have access to these natural resources through the Treaty of Point No Point signed in 1855 and the Boldt Decision in 1974. Therefore, the harvesting of these natural resources has an economic, cultural, spiritual, and legal component.

Port Gamble S'Klallam tribal members have retained legal access to natural resources through Article 4 of the Point No Point Treaty signed in 1855:

"The right of taking fish at usual and accustomed grounds and stations is further secured to said Indians, in common with all citizens of the United States; and of erecting temporary houses for the purpose of curing; together with the privilege of hunting and gathering roots and berries on open and unclaimed lands. Provided, however, That they shall not take shell-fish from any beds staked or cultivated by citizens."

This treaty was reaffirmed through Federal District Court Judge George Hugo Boldt's decision in 1974 (the Boldt Decision), which determined that tribes have the opportunity to catch half the harvestable surplus of salmon passing through their usual and accustomed (U&A) areas. Judge Edward Rafeedie clarified this decision in 1994 to include shellfish. Therefore, the Port Gamble S'Klallam Tribe has a legal right to co-manage and access the natural resources in the Tribe's usual and accustomed (U&A) areas. He ruled the treaties "in common" language meant that the tribes had reserved harvest rights to half of all shellfish from all of the usual and accustomed places, except those places "staked or cultivated" by citizens – or those that were specifically set aside for non- Indian shellfish cultivation purposes. "A treaty is not a grant of rights to the Indians, but a grant of rights from them," Rafeedie wrote in his December 1994 decision, adding that the United States government made a solemn promise to the tribes in the treaties that they would have a permanent right to fish as they had always done.

The Port Gamble S'Klallam tribe lived in a village on the west side of Port Gamble Bay at Teekalet Point until 1853, when the Puget Sound Mill Company, later known as the

Point Julia, foreground, is home to many of the Tribe's shellfish beds used for subsistence harvest. Directly across the inlet is the former Pope & Talbot Sawmill where the removal of thousands of creosoted pilings, dredging, and capping will occur starting in July 2015.

Pope and Talbot Sawmill, was established. At that time the Port Gamble S'Klallam tribe was relocated to Point Julia on the eastern shore of the bay. The Pope and Talbot sawmill operated until 1995 and was dismantled in 1997.

Over the years the Tribe's community and culture have maintained a great deal of continuity, while enabling adaptation to a changing world. The reason for this continuity is rooted in the land and on the water. The Port Gamble S'Klallam reservation land is owned by the Tribe as a whole, not by individuals, and there is no private ownership on the reservation. Communal sharing of the land has helped to preserve essential social and cultural traditions. Additionally, by harvesting in the waters of Port Gamble Bay, the Port Gamble S'Klallam people maintain their unique place-based, maritime fishing culture. This includes a salmon hatchery where the Tribe raises Coho and chum salmon at the mouth of Little Boston Creek, which empties out into the Bay. The net pens for the hatchery are located in Port Gamble Bay. The hatchery-raised salmon helps to replenish diminished local native stocks of salmon and provides sustenance for tribal members.

Archeological evidence supports continuous human use and occupancy of the shores of Port Gamble Bay for 1,000 years before the present day. Port Gamble S'Klallam oral history indicates a deep historic connection to Port Gamble Bay. The S'Klallam name for Port Gamble Bay is nex^{w}q'i'yt meaning "Noon Place" relating to the quality of light on Port Gamble Bay. Port Gamble S'Klallam people use Port Gamble Bay today much in the same way their ancestors did in the past. Port Gamble S'Klallam people harvest a range of resources from the marine waters of the Bay. As in the past these resources support economic life as well as rich cultural traditions.

The main cause for concern about the current source of pollution is the former Pope and Talbot Sawmill directly across the inlet from the Tribe's reservation. The site is currently undergoing a Washington State Model Toxics Control Act (MTCA) cleanup for contamination from creosoted pilings as well as from a hog fuel burner. Creosoted pilings contain polyaromatic hydrocarbons (PAHs) and burning salt-laden wood from the hog fuel burner created a plume of dioxins/furans downwind. In addition, PCBs, another chemical regulated under TSCA, are a concern due to transformers at the Mill Site and accumulation from non-point sources.

The Tribe and the Department of Ecology have collected data for several shellfish species dating back to 2008 with the most recent data from 2013. The shellfish species collected include geoduck (*Panope generosa*), Pacific oyster (*Crassostrea gigas*), butter clam (*Saxidomus gigantea*), native littleneck clam (*Leukoma staminea*), Manila littleneck clam (*Venerupis philippinarium*), horse clam (*Tresus capax*, and *T. nuttallii*), cockle (*Clinocardium nuttallii*), and Dungeness crab (*Cancer magister*). The Tribe also participated in the Mussel Watch Program and collected data from mussels (*Mytilus trossulus* and *M. galloprovincialis*).

The Washington State Department of Health (DOH) Office of Environmental Health, Safety, and Toxicology became involved with the Port Gamble S'Klallam community and the Port Gamble Bay cleanup in June 2011. This was following a request by the Tribe to Agency of Toxic Substances and Disease Registry (ATSDR) to conduct a public health assessment (PHA) on subsistence shellfish and finfish. DOH wrote the evaluation for ATSDR, with whom they have a cooperative agreement. A draft version has just finished being reviewed by scientists at ATSDR and the expected public comment period is February 5 through March 7, 2014.

Most of the samples that have been collected have detectable levels of metals, PAHs, PCBs, and dioxins. DOH/ATSDR determined in their PHA that tribal members who eat at the high tribe-estimated subsistence consumption rate have an increase in 1.6 additional cases of cancer in 1,000 people exposed at this rate. This is mostly from exposure to arsenic, carcinogenic PAHs, dioxins, and dioxin-like PCBs. This exceeds the range of risk considered acceptable by EPA. Also, there are non-carcinogenic health effects associated with cadmium and dioxins at this consumption level. The consumption rate assumed for this exposure scenario is 499 grams/ day, or a little over a pound a day, for 78 years. This was based on the 95th percentile of Suquamish Tribe shellfish consumption in the EPA Region 10 framework document for selecting and using tribal consumption rates in Puget Sound. Therefore, this is considered a reasonable maximum exposure for tribal harvesters.

Tribal members who eat at the low tribe-estimated subsistence consumption rate have an increase in 1.5 additional cases of cancer in 10,000 people exposed at this rate. This is mostly from exposure to arsenic. The consumption rate assumed for this exposure scenario is 217 grams/ day, or a little over a half pound a day, for 78 years. This was based on the 50th percentile of Suquamish Tribe shellfish consumption in the EPA Region 10 framework document for selecting and using tribal consumption rates in Puget Sound. Therefore, this is considered a reasonable maximum exposure for tribal harvesters.

The Port Gamble S'Klallam Tribe has used the nearby Suquamish Tribe's 2000 Fish Consumption Survey as a proxy to the Tribe's own consumption survey. The substitution is due to the cultural similarities (both are Coast Salish tribes), geographic proximity (10 miles), similar factors affecting resource availability, and the resources necessary to replicate a survey of similar quality. The Tribe plans to continue to use this data for tribal members' consumption rates and to calculate subsistence levels. The survey breaks down consumption by species, age group, and other demographic factors.

The ATSDR PHA determined that the general population harvesters/ recreational consumers do not have significant health risks from eating about a tenth of a pound a day (two meals/ week) for 33 years of residence.

III. Organization's Historical Connection to the Affected Community

The Project Manager (PM), Rory O'Rourke has been involved with environmental and public health issues for Port Gamble Bay and the Tribe since employment at the Tribe's Natural Resource Department in May 2012. The PM was hired as an environmental scientist/ toxicologist for the Tribe to help determine human health risks related to the sawmill cleanup. This included review of the cleanup process documents to ensure adequate protection for subsistence tribal consumers. This has included advocating for the most protective technology despite cost considerations and advocating for a cleanup that is as protective as possible to tribal consumers. The PM is also developing a human health risk assessment for the Tribe that includes more recent sampling of crab, geoduck, oysters, and bottomfish to address exposure pathways that were not previously sampled or not sampled sufficiently.

The PM worked with the Tribe's archaeologist and representatives from the Swinomish Tribe to conduct community outreach at Port Gamble S'Klallam Tribe related to perceptions of community health and availability of natural resources. Tribal members responded by clicker to a set of indicators developed and reviewed by staff. This work was done as part of EPA STAR grant #RD-83479101-0.

The PM has also represented the Port Gamble S'Klallam Tribe as a technical representative accompanying the Chairman for government-to-government consultations with EPA Region 10 Administrator and the Director of Ecology. Some of the issues addressed include updating the human health criterion for water quality standards and sediment standards to be more protective of subsistence tribal consumers and designated uses, especially treaty rights.

The PM's last major outreach involvement was when he gave testimony at the public meeting for the Port Gamble Bay cleanup. Most of the testimony was in support of many technical issues the Tribe had in the draft cleanup action plan released by Ecology in October 2013. The PM answered questions community members had about the cleanup before going to the public meeting. In addition, he submitted comments on the technical issues to Ecology's site manager. Ecology has reviewed and carefully considered all comments received on the draft documents, and determined that no significant changes to the other documents were needed, though numerous comments and opinions were noted.

The Port Gamble S'Klallam Tribe's Natural Resources Department is committed to sustainably manage, protect, enhance, conserve, and restore culturally-relevant species, landscapes and seascapes integral to the unique identity of the S'Klallam People. The Tribe and Point No Point Treaty Council work together to protect treaty rights of the natural and cultural resources of the Point No Point Treaty area.

One way the Natural Resources Department receives feedback from the community is through Fish Committee. The committee is composed of active treaty fishermen who receive updates from Natural Resources staff. In response, Fish Committee makes updates and recommendations to Tribal Council. The community is directly involved in decision making that affects both subsistence and commercial harvests in the Bay.

IV. Project Description (25 points)

The project will have several components, including an evaluation of current samples as a baseline, identification and implementation of additional sampling necessary to complete the baseline, design of a shellfish monitoring plan, training for a technician, sampling for the first year of cleanup, and design of an accurate risk communication system for different consumer groups (high subsistence, low subsistence, general population).

Environmental and Public Health Goals and Objectives

Overarching goal: To provide a clean healthy bay for harvesting and protecting treaty resources.

Environmental objectives: To ensure that the shellfish that the Tribe depends on for subsistence are not further polluted by remediation, are safe to eat, and are protected from further damage during the cleanup of Port Gamble Bay and the sawmill area.

Economic objective: To provide a sustainable food source of shellfish for future generations of tribal harvesters for both commercial and subsistence harvests.

Implementation objective: To establish an effective risk communication strategy that is understood by tribal members.

The community vision has materialized through a series of "substantive issues" and "process issues." The substantive issues include concerns by residents about environmental pollution, higher risks of cancer, and higher rates of cancer than previous generations. Subsistence fishers and harvesters stopped eating out of the Bay due to

perceived risks. The process issues included frustrations on dealing with the state and federal bureaucratic processes for answers. The Tribe was not satisfied with the initial cleanup proposed by Ecology. Although the cleanup plan has improved, Ecology has frequently not been responsive to comments from tribes. It has taken almost three years to get answers on the safety of shellfish and finfish from ATSDR. Therefore, the Tribe decided that they would exercise their right of self-determination to take matters into their own hands. The Tribe started the Port Gamble Bay Protection Program, through which the PM is funded, in 2012 to start answering some of these questions.

Power imbalances that can typically arise from environmental justice issues will be easier to handle in this scenario over other similar proposals since this project will be managed by a scientist who is employed and hired by the tribal community. Major decisions have to be vetted before Tribal Council or General Council. Tribal Council is a democratically elected six-member body that is delegated legislative authority by the General Council. The General Council meets at least twice a year and is composed of all tribal members eighteen years of age or older. General Council has the authority to elect Tribal Council members and to make advisory recommendations to the Tribal Council through a majority vote. Therefore, the community inherently limits and expands the role of the project through the respective avenues of Tribal Council approval and community feedback.

This is beyond community-based participatory research (CBPR) since the community is hiring a scientist specifically to deal with the issues that the Tribe feels are important. Instead of an outside academic coming in to engage community members about his or her respective research, the Tribe's approach is to have their own scientist conduct research according to the Tribe's needs.

The Tribe and the Department of Ecology have already collected data for several shellfish species dating back to 2008 with the most recent data from 2013. The shellfish species collected include geoduck, Pacific oyster, butter clam, native littleneck clam, Manila littleneck clam, horse clam, cockle, mussels, and Dungeness crab. However, these samples have not been adequately assessed as a baseline relative to where most tribal members harvest.

CPS Element 2: Community Capacity-Building and Leadership Development
CPS Element 3: Consensus Building and Dispute Resolution

Community capacity-building will be carried out on several levels through this project. This includes expanding the technical capacity of the Tribe, training a technician from the community, educating tribal members on health effects from varying levels of consumption, and gauging community input before implementing the monitoring plan and associated communication. The technical capacity of the Tribe will be expanded through collaborative partnerships like DOH and Aquatechnics, who will review data and give suggestions as how to best design a monitoring plan that incorporates the study objectives. A technician from the community will be trained to carry out monitoring according to SAP/ QAPP specifications. This will help provide a job for a community member, nurture leadership skills, and ensure community members are actively involved in the process.

Education and involvement are essential for tribal members to understand the process. Education will include explaining how different consumers can have different exposure scenarios and how that can impact health. A workshop is planned for June 2014

that will inform community members about the project and will ask for input. This will help community members gain trust and allow them to be part of the collaborative problem-solving process.

The MOAs in place and the action plan (see CPS Element 6 below) will define the role of each of the stakeholders. The partners will work together for a common vision and a common goal. This will help to minimize disputes by every party having clearly defined roles and expectations in the project. However, there is still the possibility for conflict and the need for conflict resolution. If conflict does arise, the parties will use facilitated dialogue mediated by a third-party. The selection of the third party will be determined based on the nature of the parties in disagreement.

CPS Element 4: Multi-Stakeholder Partnerships and Leveraging of Resources and CPS Element 5: Constructive Engagement by Relevant Stakeholders

As a state government agency, DOH will play many roles in this collaborative problem solving effort. These include: acting as a convener or facilitator, providing technical assistance, information, and organizational capacity, assisting in coordination and communications, focusing on a problem, and providing legitimacy to an effort. DOH will assist in looking at the data that has already been collected by the Tribe and by Ecology to see if these samples provide an adequate baseline. This will include an analysis of which species have been sampled and to compare that to typical harvest locations. DOH will assist in determining whether enough samples have been collected in the areas where harvesting occurs. DOH will work with the Tribe and other technical experts to design a monitoring plan that takes into account the diversity of species harvested at each beach. DOH risk assessors have previous experience doing similar projects at other Puget Sound tribes such as Suquamish, Squaxin Island, and Nisqually. DOH will also work with the Tribe to design a risk communication system that will accurately and succinctly describe to lay persons the health risks of eating shellfish out of the bay. DOH will review any sampling plans/ quality assurance project plans (SAPs/QAPPs) for the project.

DOH has worked with the Tribe on a PHA with the data that was available as of 2011. DOH has also collaborated with the Tribe using mapping tools such as GIS. Rhonda Kaetzel from DOH worked with the Tribe's shellfish biologist Tamara Gage to create a map layer showing where species are located in the bay based on habitat surveys. The layer will be useful information for designing the sampling and monitoring. DOH and the Tribe have already started collaborating on risk communication plans as part of the PHA. For example, Erin Govednik from DOH has started collaborating with Destiny Wellman from the Tribe on effective risk communication strategies. Erin has shared her experience with what has worked at other sites, while Destiny shares what she thinks will be most effective for the tribal community.

Aquatechnics, Inc., will also provide a great deal of technical expertise to the project. Aquatechnics Inc. is a local business from Sequim, Washington, that specializes in shellfish health management. The President and founder, Dr. Ralph Elston, has a background in aquatic animal pathology and fish biology. His experience includes environmental pathology and toxicology, including research investigations into farmed shellfish products affected by pollution events. Some experience that relates directly to this project includes establishing the extent and effects of oil spills and dioxin contamination for shellfish farming clients. He has previously worked with the Tribe on a bottomfish sampling event.

Aquatechnics will assist in looking at the data that has already been collected by the Tribe and by Ecology to see if these samples provide an adequate baseline for future monitoring events. This will include an analysis of which species have been sampled, and to compare that to species typically harvested in each location. Aquatechnics will work with the Tribe and other technical experts to design a monitoring plan that takes into account the diversity of species harvested at each beach. Aquatechnics will review any SAPs/ QAPPs.

Following the Boldt decision in 1974, the Port Gamble and Lower Elwha S'Klallam Tribes joined with the Skokomish Tribe (formerly the Twana) to form the Point No Point Treaty Council, a fisheries management cooperative designed to manage and enhance the fisheries resources in the Point No Point Treaty area. A majority of the staff has worked for the Treaty Council for more than 10 years, with some more than thirty years. The Treaty Council has promoted the concept of co-management in its work with its member tribes, other treaty tribes, and the State of Washington. The work incorporates coordinated harvest management, stock assessment and enhancement, and habitat preservation between jurisdictions to ensure the preservation of natural resources, thereby continuing successful implementation of tribal treaty rights.

Point No Point Treaty Council will be a crucial technical partner in the development and execution of the proposal. Their biologists will help with shellfish habitat identification and management. Their GIS specialist will design maps to support the project. The Council will also help with risk communication by contributing knowledge about the local community. Their staff will help to ensure that the monitoring and communication does not conflict with treaty rights.

Baywater, Inc. is a local business that has a history of shellfish farming in Hood Canal since 1990. The company is a producer of Pacific oysters, Manila clams and geoducks with harvest sites in North Hood Canal. Baywater Shellfish Farms has a vested interest in better understanding how creosote piling removal and other pollution sources can impact shellfish quality and human health as sources of hydrocarbon-based pollution have a long history associated with shellfish and shellfish growing area impacts. As a shellfish grower, Baywater, Inc. will make sure that the interests of general population consumers are represented. Jonathan (Joth) Davis, who is the owner of the company, will contribute to the monitoring plan through his knowledge about shellfish habitat and management. He will also help with training the technician through his knowledge of local shellfish species.

CPS Element 6: Sound Management and Implementation

The partners will meet after the announcement of grant recipients to develop an action plan and affirm their roles and commitments. The plan will also help establish a timeline and coordinate schedules of all the technical experts.

In addition to developing a monitoring plan, the program will design an accurate risk message for high subsistence, low subsistence, and general population/recreational consumers. The point is to not scare tribal and community members, nor paint an overly rosy picture of any activities that are going on in the bay. Education is key to this aspect of the proposal since tribal members will have to learn about how their own personal consumption will be affected by toxics.

The consumer groups will be based on exposure scenarios as described in the ATSDR PHA. The tribal exposure scenarios are derived from the 2000 Suquamish Tribe

consumption survey. The high subsistence consumers are a reasonable maximum exposure scenario derived from 95th percentile of shellfish consumption from the Suquamish Tribe survey. This is about a little over a pound a day from Port Gamble Bay for 78 years. The low subsistence consumers would be the median consumption rate based on the 50th percentile in the Suquamish survey. This is about a half pound of shellfish a day from Port Gamble Bay for 78 years. A recreational harvester/ local resident exposure scenario can also be derived based on harvesting twice/ week from Port Gamble Bay for 33 years. These parameters can be adjusted based on new information and feedback from partners and the community.

In order to communicate the hazards of eating shellfish from the beaches, signs and literature will show visuals of the daily portion sizes for each consumer group. The recommendations for harvesting for these consumer groups will mostly be based on additive cancer risk. This is because the major contaminants of concern for Port Gamble Bay are PAHs, PCBs, and dioxins, which have additive cancer risk through their interaction with the Ah receptor. Arsenic, another contaminant of concern, also greatly contributes to cancer risk. Based on the risk levels described in the ATSDR PHA, the recommendation thresholds will be broken into three categories: green, yellow, and red. Green would indicate insignificant cancer risk (less than 10^-6). Yellow would indicate acceptable cancer risk as determined by EPA (10^-4 to 10^-6 range). Red would indicate a higher than acceptable cancer risk (greater than 10^-4). For example, if monitoring replicated the cancer risks found in the ATSDR PHA, high subsistence consumers would have red, low subsistence consumers would have yellow, and general population/ recreational harvesters would have green. Improvement in shellfish quality can be clearly seen if more consumer groups move towards green, and degradation in shellfish quality can be seen if more groups move to red.

Non-carcinogens will be evaluated on a case-by-case basis using a hazard index greater than one as a threshold for evaluation.

Monitoring is anticipated to occur monthly due to availability of funds and practical limitations. A major practical limitation is that the turn around time for most environmental labs is two weeks. It will take another two weeks for the collaborators to interpret the data and come up with a risk message for the community. This will help protect harvesters by giving them much more up-to-date information than most ambient monitoring programs, e.g. Mussel Watch. If data shows there is an increase in contaminants between monthly monitoring events, then harvesters can be warned and the Tribe can meet with Ecology to discuss ways to adjust the cleanup to have less of an impact. One goal is to identify any data trends noticed between cleanup construction activities and associated contaminant concentrations during the first year of monitoring. Potential sources of contamination during cleanup activities include leaching of PAHs from breakages during creosoted piling removal and a variety of contaminants from dredging Mill Site sediments. Capping activities also have the potential to affect shellfish quality.

Monitoring will help to see if dredging and mitigation technology is working or needs to be adjusted. The goal is to better relate spikes in contaminant concentrations, such as those found during Mussel Watch, to water quality and absorption levels in shellfish.

The Tribe's shellfish biologists have collected harvest data from voluntary responses on subsistence cards identifying which beaches tribal members typically harvest. This information is intended to be used as an informal survey of where most tribal

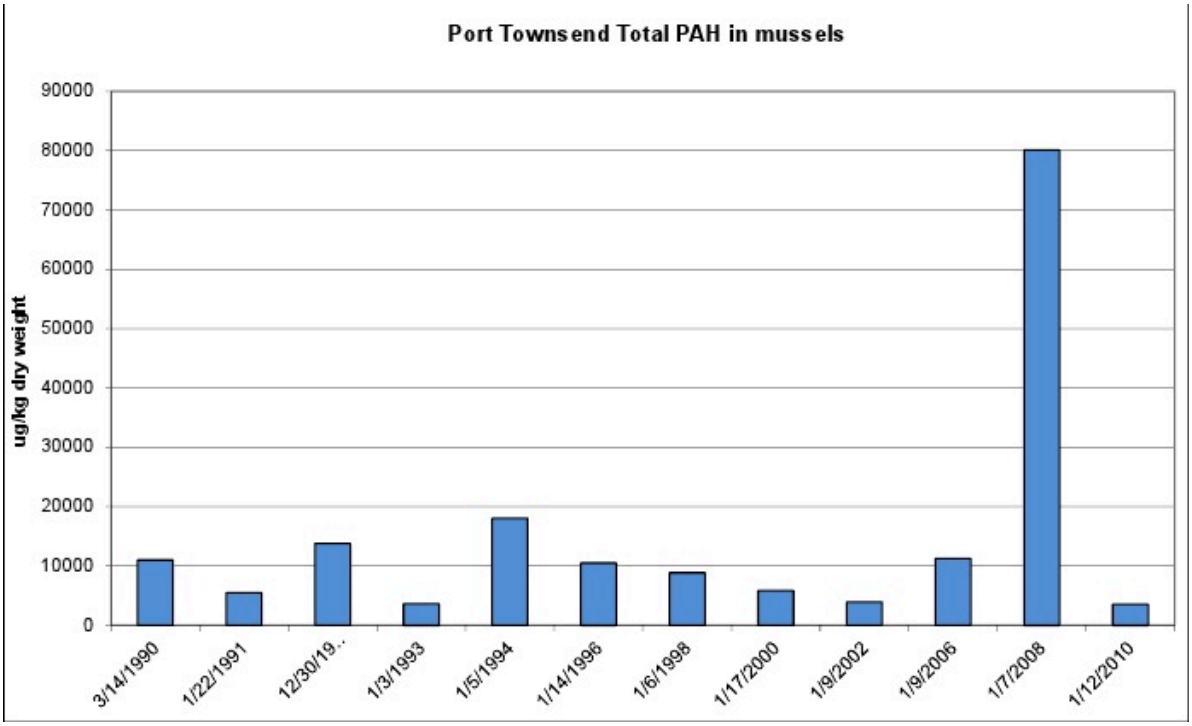
members harvest and therefore where monitoring for human health will have the greatest benefit. The project will attempt to best characterize these beaches, which are located mostly on reservation on the northeastern shoreline of the Bay.

CPS Element 7: Evaluation, Lessons Learned, and Replication of Best Practices
Measurable Outputs:

- Develop an adequate sampling baseline for comparison to future monitoring results.
- Develop a communication network for all harvesters in Port Gamble Bay.
- Develop exposure scenarios that are representative of consumer groups that typically harvest in the Bay.
- Develop monitoring plan.
- Hire and train a technician to conduct monitoring.

Measurable Outcomes: The most important measurable outcome will be a reduction in exposure to toxic chemicals such as metals, PAHs, PCBs, and dioxins and therefore a reduction in cancer risk. A way to measure this outcome is to survey how many community members changed their harvesting practices as a result of the risk communication system.

This monitoring plan can be used as an effective model for community-based monitoring during future cleanups. Most cleanup monitoring is done as a requirement by a



Mussel Watch data from Port Townsend, WA in 2008 indicates a spike in PAHs in Port Townsend harbor around the time of creosoted piling removal at a marina. More frequent monitoring has the potential to better correlate these spikes with construction activities that can be avoided or mitigated in future projects to prevent PAH contamination of shellfish beds. (Source: Lincoln Loehr, Snohomish County Marine Resources Committee)

government agency for the liable party and is not done by the community to assure the safety of harvesting. A benefit of this model is that the community has more trust in the safety and standards since they are based on values relevant to the community instead of what is chosen by the consultant in the interests of the liable party. Also, the community will choose how to spend the funds associated with sampling as opposed to having to negotiate with a liable party.

Another measurable outcome is to better tie together water quality and the effects on shellfish contamination. Although no water quality data will be collected during this project, Ecology will be collecting water quality data as part of their confirmational monitoring during the cleanup. This information can be correlated to the shellfish sampling results so that data trends can be determined. If any data trends are noticed between cleanup construction activities and associated contaminant concentrations during the first year of monitoring, predictive modeling can be attempted the next year in order to provide harvesters with more up-to-date information.

Another measurable outcome is the percent of harvesters who feel more confident in the safety of their shellfish after the monitoring program vs. before it was instituted. In the event that monitoring results show safe levels for all consumer groups, it would still be a positive benefit since it would boost the confidence of consumers in the safety of shellfish harvested from Port Gamble Bay beaches.

Resource protection is a priority for the Tribe. This project would help ensure the safety of shellfish harvesting during the cleanup and will ensure that technology is working to prevent contaminant redistribution.

This project has the potential to better assess contaminant trends from piling removal, dredging, and capping that would help inform shellfish growers, like Baywater, Inc., how to better protect their shellfish beds for consumer safety during pollution events. This information will help keep more shellfish beds open instead of having a complete closure in a region.

Ultimately, the project may impact how the cleanup is performed so that there is a reduction in the amount of contamination that enters the environment.

V. Organizational Capacity and Programmatic Capability (8 points)

The Tribe's financial policies and procedures promote consistency, continuity and understanding of its financial management. Internal controls, an integrated part of the financial system, adequately safeguard federal funds and provide accurate, current, and reliable accounting data. Segregation of duties and accounting procedures are incorporated into this system.

In general, all purchases require dual signatures by the requestor and his/her departmental director, subject to delegated signing authorities. All purchases in excess of $5,000 require a competitive bidding process, as do all capital construction contracts. All checks require signatures of the Administrative Director and a Tribal Council member.

The Tribe's stable, effective leadership has sustained a long record of success by maintaining a clear vision of the future and planning accordingly. Over 60 grants and contracts are managed from federal, state, and private sources totaling over $5.5 million in annual funding. The Tribe is in its 20th year of a Self-Governance Compact with the Bureau of Indian Affairs and with the Indian Health Service, which equates to well over $500,000 in annual fiscal management.

The Tribe, the grantee and legal entity, operates with federally-approved financial, accounting, procurement, personnel and property management systems, which account for and safeguard funds procured under this grant. The Tribal Accounting Department employs a double entry accrual system of accounting. An independent annual audit is performed in conformity with Government Auditing Standards, and separate journals and ledgers are maintained for each individual program in the direct cost base. A separate journal and general ledger are also maintained for the indirect cost pool. The accounting and financial systems are certified as meeting regulations of 25 CFR 276.7. Grant budgets are included as part of departmental budgets which go through annual budgetary review.

The Tribe's financial management system will provide effective fiscal control over the proposed grant. When notice is received that a grant is approved, a tribal budget form is entered in the Tribe's computerized accounting system. From this point on the Tribe's internal controls, monthly financial reports and other accounting standards ensure that the grant will be administered successfully.

VI. Qualifications of the Project Manager (10 points)

The Project Manager (PM) has several educational qualifications that relate to this project. Rory O'Rourke, has a B.S. Molecular and Cellular Biology from Johns Hopkins University, an Masters of Health Sciences in Environmental Health specializing in Human Toxicology and Pathophysiology, a Risk Science and Public Policy Certificate from the Johns Hopkins Bloomberg School of Public Health, 40-Hour OSHA HAZWOPER training (June 2011), and subsequent 8-hour HAZWOPER Refresher Training.

The PM has been involved with environmental and public health issues for Port Gamble Bay and the Tribe since May 2012. The project manager was hired as an environmental scientist/ toxicologist to help determine human health risks related to the sawmill cleanup. This included review of the cleanup process documents to ensure adequate protection for subsistence tribal consumers. This has included advocating for a cleanup that is as protective as possible to tribal consumers. The PM worked with DOH toxicologist Rhonda Kaetzel on her writing of the ATSDR Public Health Evaluation to ensure accuracy and applicability for the Tribe. The PM is also developing a human health risk assessment for the Tribe that includes more recent sampling of crab, geoduck, oysters, and bottomfish to address exposure pathways that were not previously sampled or not sampled sufficiently.

The project manager worked with the Tribe's archaeologist and representatives from the Swinomish Tribe to conduct community outreach at Port Gamble S'Klallam Tribe related to perceptions of community health and availability of natural resources. Tribal members responded by clicker to a set of indicators developed and reviewed by staff. This work was done as part of EPA STAR grant #RD-83479101-0.

The PM has also represented the Port Gamble S'Klallam Tribe as a technical representative accompanying the Chairman for government-to-government consultations with EPA Region 10 Administrator and the Director of Ecology. The consultations addressed updating the human health criterion for water quality standards and sediment standards to be more protective of subsistence tribal consumers and designated uses, especially treaty rights.

The PM's last major outreach involvement was testimony at the public meeting for the Port Gamble Bay cleanup. Most of the testimony was in support of many technical

issues the Tribe had in the draft cleanup action plan released by Ecology in October 2013. The PM answered questions community members had about the cleanup before going to the public meeting. In addition, he submitted comments on the technical issues that the Tribe had related to the cleanup Ecology's site manager. Ecology has reviewed and carefully considered all comments received on the draft documents, and determined that no significant changes to the documents were needed, though numerous comments and opinions were noted. To date, many of these comments have not been addressed.

VII. Past Performances in Reporting on Outputs and Outcomes (5 points)

Past federal grant awards include the following:

- In 2011 and 2012, PGST was awarded NEIEN Grants for $132,230, and $127,430 respectively. The grant project officer was Diana Boquist, 1200 Sixth Avenue, EMI-095, Seattle, WA 98101. Her phone number is (206)553-1586 and her email is boquist.diana@epa.gov. PGST installed the WQX data flow, managed and organized water quality data and successfully sent data to EPA. The Tribe also assisted in the development and testing of the NWIFC JMX data exchange. PGST also developed and deployed an AQS plug-in for the current 2.0 Node with this grant. All project outcomes and reporting requirements have been met.
- PGST was awarded two U.S. Environmental Protection Agency (EPA) Brownfields Program grants for $400,000 in two $200,000 grants (community-wide hazardous substances and petroleum contamination) from 01/01/2010 to 12/31/2013. The grant project officer was Laura Caparroso, 1200 Sixth Ave., EMI-095, Seattle, WA 98101, (206)553-1586, caparroso.laura@epa.gov Funds were used to perform Phase I and Phase II environmental assessments, conduct community involvement activities and complete human health risk assessments. Brownfield assessments characterized and documented environmental contamination and set up an inventory of 15 contaminated sites including a former mill site in Port Gamble, abandoned waste dumps, landfill, impacted beaches, wetland, and others. All project outcomes and reporting requirements have been met.
- The Port Gamble S'Klallam Natural Resources Department has successfully implemented many grants including grants from NOAA Pacific Coastal Salmon Recovery; BIA Self Governance Pacific Salmon Treaty, Fisheries, Shellfish, and Forest and Fish; Washington State Department of Ecology's Public Participation Grant, and Washington State Department of Natural Resources Forest and Fish program. All project outcomes and reporting requirements have been met. The Tribe's Natural Resources Department has a solid record of not only accomplishing but exceeding grant deliverables, reports, and accounting responsibilities.

VIII. Expenditure of Awarded Grant Funds – 2 points

Grant notice of award will be accepted into the accounting system and new accounts will be set up to manage the award funds. The Project Manager will prepare forms for every expenditure, including travel, contractual, training, and outreach materials. All contractual materials will be bid competitively. The following schedule is anticipated for expenditure of funds:

May 2014: Receive news about grant award acceptance

June 2014: Hold community workshop to discuss project and hear input from concerned community members
July 2014: Gather technical experts and begin work on Action Plan. Advertise for technician position.
August 2014: Start reviewing baseline and developing quality assurance plan for collection of shellfish samples. Develop SAP and QAPP. Hire and start training for sampling technician position.
September 2014: Collect samples to complete any data gaps in baseline assessment (technician)
October 2014: Travel to Washington, DC, for federal fund workshop
December 2014: Write Annual Progress Report
January 2015: Start designing monitoring plan
May 2015: Hold community meeting explaining sampling/ monitoring and risk communication program
July 2015: Start of cleanup
July 2015 – January 2016: Conduct monitoring during first phase of cleanup
December 2015: Write Annual Progress Report
February 2016: Conduct survey to assess measurable outcomes from project
May 2016: Write Final Report

IX. Quality Assurance Project Plan Information

This project will require the use of existing environmental data AND the collection of new data, therefore a quality assurance project plan (QAPP) will need to be developed. The development and approval of a QAPP will be required before the initiation of any grant activities. Existing shellfish sampling data that has been previously collected for this project will have its own respective SAP and/ or QAPP and can be provided upon request. The QAPP questionnaire is attached as Appendix F.

Project Performance Measures (logic model attached as Appendix E)